

I claim:

1. A haptic throttle control mechanism for a marine propulsion system, comprising:  
5       an operator controlled movable device;

          a marine propulsion unit connected in signal communication with said  
operator controlled movable device, said operator controlled movable device being  
configured to provide a signal to said marine propulsion unit, said marine  
propulsion unit comprising an engine, said signal being generally related to a  
10       commanded engine speed; and

          a vibrating element connected in vibration transmitting relation with said  
operator controlled movable device, said vibrating element being configured to  
vibrate in a manner which is generally representative of an operating characteristic  
of said marine propulsion system.

15       2. The throttle control mechanism of claim 1, wherein:

          said operator controlled movable device is a throttle control mechanism  
which is pivotable about an axis.

20       3. The throttle control mechanism of claim 2, wherein:

          a range of travel of said throttle control mechanism includes a forward speed  
segment and a reverse speed segment.

4. The throttle control mechanism of claim 2, wherein:

25       an angular distance of said throttle control mechanism from a central  
position is representative of said commanded engine speed.

5. The throttle control mechanism of claim 1, further comprising:

an engine speed monitoring device having an output speed signal which is representative of an actual engine speed.

5 6. The throttle control mechanism of claim 5, wherein:

said vibrating element is configured to vibrate at a frequency which is representative of said actual engine speed.

7. The throttle control mechanism of claim 6, wherein:

10 said vibrating element is configured to vibrate at a frequency which is directly proportional to said actual engine speed.

8. The throttle control mechanism of claim 1, wherein:

15 said vibrating element is configured to vibrate at a frequency which is representative of an alarm condition.

9. The throttle control mechanism of claim 1, wherein:

said vibrating element comprises a rotating component attached to a shaft of an electric motor.

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10. The throttle control mechanism of claim 9, wherein:

said vibrating element comprises a piezoelectric component.

11. The throttle control mechanism of claim 9, wherein:

25 said rotating component is an unbalanced eccentric object configured to create vibrations when rotated about an axis which is not aligned with a center of gravity of said object.

12. A haptic throttle control mechanism for a marine propulsion system, comprising:

an operator controlled movable throttle control mechanism;

5 a marine propulsion unit connected in signal communication with said operator controlled movable throttle control mechanism, said operator controlled movable throttle control mechanism being configured to provide a signal to said marine propulsion unit, said marine propulsion unit comprising an engine, said signal being generally related to a commanded engine speed, a range of travel of  
10 said operator controlled movable throttle control mechanism comprising a forward speed segment and a reverse speed segment;

a vibrating element connected in vibration transmitting relation with said operator controlled movable throttle control mechanism, said vibrating element being configured to vibrate in a manner which is generally representative of an  
15 operating characteristic of said marine propulsion system.

13. The throttle control mechanism of claim 12, wherein:

an angular distance of said throttle control mechanism from a central position is representative of said commanded engine speed.

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14. The throttle control mechanism of claim 13, further comprising:

an engine speed monitoring device having an output speed signal which is representative of an actual engine speed.

25 15. The throttle control mechanism of claim 14, wherein:

said vibrating element is configured to vibrate at a frequency which is representative of said actual engine speed.

16. The throttle control mechanism of claim 15, wherein:

said vibrating element is configured to vibrate at a frequency which is directly proportional to said actual engine speed.

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17. The throttle control mechanism of claim 14, wherein:

said vibrating element is configured to vibrate at a frequency which is representative of an alarm condition.

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18. The throttle control mechanism of claim 14, wherein:

said vibrating element comprises a rotating component attached to a shaft of an electric motor.

19. A haptic throttle control mechanism for a marine propulsion system,

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comprising:

an operator controlled movable throttle control mechanism;

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a marine propulsion unit connected in signal communication with said operator controlled movable throttle control mechanism, said operator controlled movable throttle control mechanism being configured to provide a signal to said marine propulsion unit, said marine propulsion unit comprising an engine, said signal being generally related to a commanded engine speed, a range of travel of said operator controlled movable throttle control mechanism comprising a forward speed segment and a reverse speed segment, an angular distance of said throttle control mechanism from a central position being representative of said commanded engine speed;

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a vibrating element connected in vibration transmitting relation with said operator controlled movable throttle control mechanism, said vibrating element

being configured to vibrate in a manner which is generally representative of an operating characteristic of said marine propulsion system, said vibrating element comprising a rotating component attached to a shaft of an electric motor; and

an engine speed monitoring device having an output speed signal which is  
5 representative of an actual engine speed.

20. The throttle control mechanism of claim 19, wherein:

said vibrating element is configured to vibrate at a frequency which is representative of said actual engine speed.

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